gemini®

SERVICE MANUAL

X1 / X2 / X3 / X4

PROFESSIONAL AMPLIFIERS

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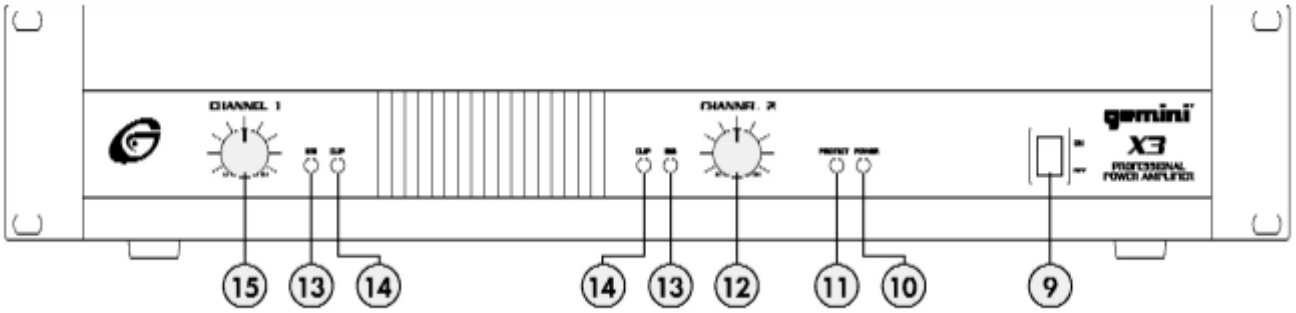
X1 / X2 / X3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PROFESSIONAL
POWER AMPLIFIER
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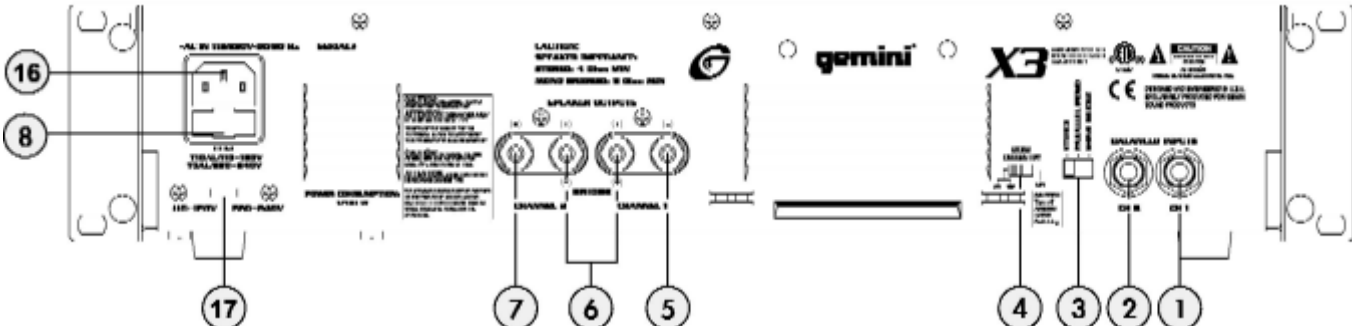
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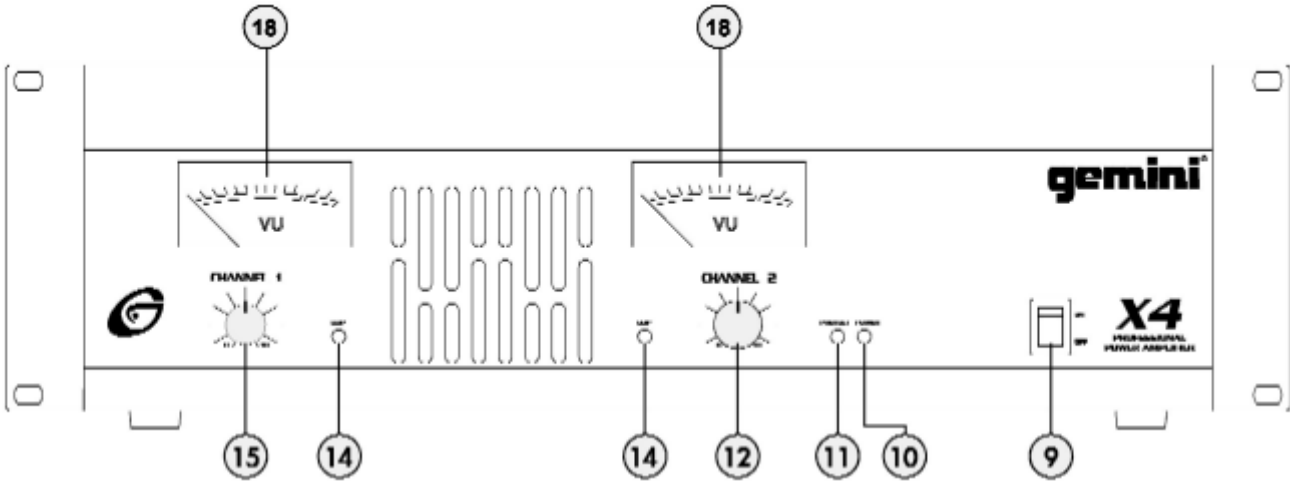
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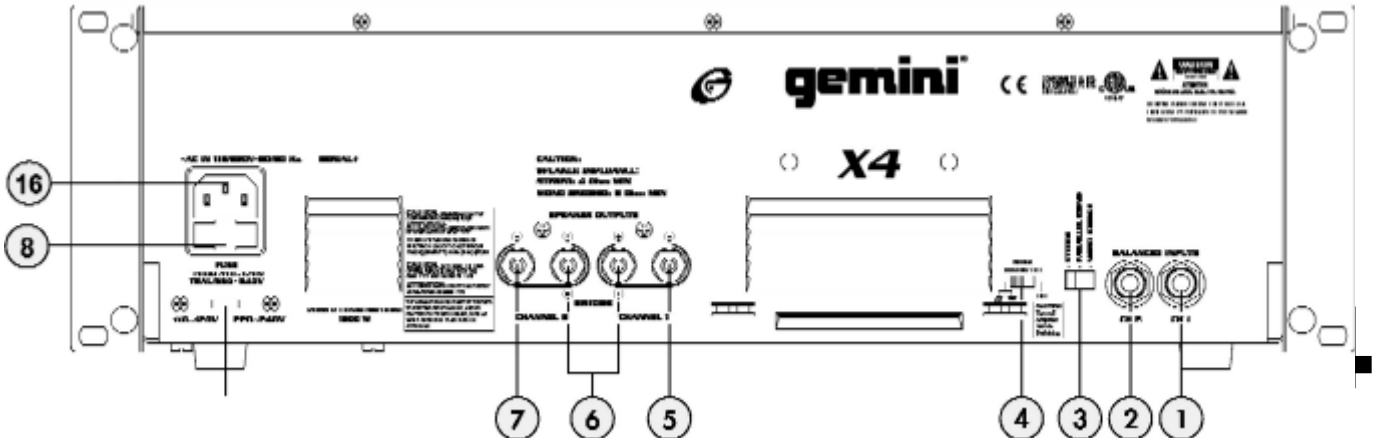
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X4
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INTRODUCTION

Congratulations on purchasing a Gemini Power Amplifier. This state of the art power arnplifier includes the latest features and is backed by a three year limited warranty. Prior to use, we suggest that you carefully read all the instructions.

FEATURES

- State of the art bi-polar output stage technology for the finest sound quality and reliability
- High output power to drive professional loudspeakers without clipping
- Comprehensive protection circuity (Short Circuit, DC, Thermal Cut-off, Sub/Ultrasonic Frequency Filters, Turn-on Delay, Main Fuse, Secondary DC Fuses)
- Three modes of operation - stereo, parallel mono and mono bridge
- Active 1/4" Jack balanced/unbalanced inputs
- Ground lift switch for flexibility in installations
- Signal LEDs and Clip LEDs for better control on X1, X2, X3 amplifers
- Large VU-meters and Clip LEDs for better control on X4 amplifier
- Efficient dual aluminum extrusion heatsink design with directly mounted output transistors for no-fault operation
- Efficient air guide with front-to-rear airflow for thermal stability and reliability
- Compact 2U well balanced enclosure (3U for X4 model)
- Steel reinforced chassis construction for durability and longevity

WORDS TO THE WISE

1. Read all operating instructions before using this equipment.
2. To reduce the risk of electrical shock, do not open the unit. There are NO USER REPLACEABLE PARTS INSIDE. Please contact the Gemini Service Department or your authorized dealer to speak to a qualified Gemini Sound Products technician.
3. Be sure to allow adequate front and rear ventilation to avoid possible heat damage to your equipment.
4. Be sure that AC power is OFF and all level controls are set to MINIMUM before making connections. This will eliminate any chance of unexpected, loud audio transients that could damage your speaker systems.

In the USA: If you experience problems with this unit, please call **1 (732) 738-9003** for Gemini Customer Service.

Do not attempt to return this equipment to your dealer.

5. Be sure that AC power is OFF when changing modes of operation and when changing the position of the ground lift switch.
6. DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. Operators of electronic equipment should in no way be in contact with water.
7. When connecting to AC power line be sure you haven't lost the ground connection by using an adapter or extension cord without a 3 prong plug.
8. DO NOT USE ANY SPRAY CLEANER OR LUBRICANT ON ANY CONTROLS OR SWITCHES.

CONNECTION, CONTROLS AND INDICATORS

Rear panel

Input Section:

1/4" Phone Input Jacks (1, 2): accept a balanced as well as an unbalanced line level signal. The unbalanced line uses a standard tip-sleeve connection. The tip is positive and the sleeve is negative or ground. The balanced line uses a tip-ring-sleeve connection. Tip is hot or positive (+), ring is cold or negative (-), and sleeve is shield or ground.

Operation Mode Switch (3): switch is used to set the unit for Stereo mode, Parallel Mono mode or Mono Bridge mode.

AC Power Section:

Fuse (8): replace fuse with those of proper type and rating.

Ground Lift Switch (4) is used to lift the ground from the chassis, see the Ground Lift Switch Instructions for more detail.

AC Inlet (16) is used to attach the power cord to the unit.

AC line voltage switch (17) allows reconfiguring amplifier for either 110-120V or 220-240V AC lines.

Output Section:

Disconnect unit from the AC power source before making any connections. Pay close attention to polarity (shown on the back of the unit) when connecting your speakers. Connecting your speaker systems using the wrong polarity will not damage your speakers, but will impact the quality of the sound (lack of bass and incorrect stereo image).

Speaker Outputs (5,6,7): the speaker output connectors are 3-way binding posts that will accept a standard banana plug, spade lugs, or bare wire. Make sure that all the connections are clean when using bare wire connections. If any strands of wire from one connector touch the adjacent connector, the sound will distort, and your amplifier will overheat and go into protection mode.

NOTE: Total speaker impedance must not be lower than 4 Ohm per channel for Stereo and Parallel Mono modes, and 8 Ohm for Mono Bridge mode.

Front Panel

Power Switch (9) : turns the unit on and off.

Power LED (10): the power LED lights when the power is on. If the power LED does not light, refer to the troubleshooting guide.

Signal LED (13): the signal LEDs for each channel show when a signal is present. In Mono Bridge mode, both the channel 1 LED and the channel 2 LED will light in unison.

Clip LED (14): the amplifier has true clip LEDs to help you properly control the amplifier's output and achieve undistorted sound. The clip LEDs for each channel light when your signal level is so strong that the distortion occurs. The clip LED should not remain constantly on or flash repeatedly during operation. For clean sound reproduction, the clip LED should only light occasionally for an instant. If the LED remains on or flashes repeatedly, you will hear distorted sound that can be damaging to your speaker systems. If this occurs, reduce the signal level by lowering the input level control for the channel that is clipping or reduce the level at the source. If the clip LED lights when no signal is present, it may indicate an RF signal on the output which may cause damage to speakers (the RF signal will not be audible). Please note that when you are using the amplifier in the Mono Bridge mode, both clip LEDs of the bridged channels will operate simultaneously.

Protect LED (11): when you first turn on the amplifier, the protect LEDs light briefly during a turn-on delay which indicates that the outputs are disconnected internally. There will be an audible click when the outputs reconnect and the protect LED will turn off. Otherwise, the protect LED indicates that there is a problem either in the amplifier's external connections, load or temperature conditions or its internal

functions. If one of these situations occurs, the amplifier senses the problem and automatically switches into protection mode. The LED will light to warn you of the trouble and the amplifier will stop working. If this occurs, switch off the amplifier and refer to the Troubleshooting Guide. If the protect LED remains lit when resuming amplifier operation, do not use the amplifier and contact an authorized service technician.

Level Controls (12,15): establish the input levels required for each channel. Only the Channel 1 Level Control (15) works in Mono Bridge mode.

OPERATION

THE AMPLIFIER'S POWER MUST BE TURNED OFF WHEN CHANGING MODES OF OPERATION.

Stereo Operation

The unit has two channels for stereo operation. Each channel provides a separate and discrete signal at the speaker outputs according to the signal received at the inputs. The following instructions are for applications with 4 Ohm or 8 Ohm speakers of matched power ratings.

1. With the power off, set the OPERATION MODE SWITCH (3) to the STEREO position.
2. With the power off, connect your input cables to the channel 1 and 2 inputs using the 1/4" INPUT JACKS (1, 2) of each channel.
3. Connect the loudspeakers to the channel 1 and channel 2 SPEAKER OUTPUTS (5,7). THE TOTAL SPEAKER LOAD MUST BE AT LEAST 4 OHMS PER CHANNEL. If you try to operate at a lower impedance, the amplifier will go into protection mode and stop operation until you correct the load conditions.
4. With the LEVEL CONTROLS (12,15) of both channels set to zero (fully counterclockwise), turn the POWER SWITCH (9) on. Apply a signal to the input of the amplifier. The level of the input signal should be as high as you will ever need it to be. This way, it will be as high above the amplifier's noise floor as possible, ensuring an excellent performance and signal to noise ratio. Adjust the LEVEL CONTROLS for each channel to achieve the desired maximum listening level. Note, when the clip LEDs light, there is distortion present in the amplifier's output section. If a clip LED remains on or flashes repeatedly, reduce the signal level by lowering the input level control for the channel that is clipping or reduce the level at the source.

Parallel Mono Operation

Follow these instructions for Parallel Mono Operation using a single input cable, and you will have the same monophonic signal on both the channel 1 and the channel 2 outputs. Each channel's output is controlled independently by that channel's level control.

1. With the power off, set the OPERATION MODE SWITCH (3) to the PARALLEL Mono position.
2. With the power off, connect your input cables to the channel 1 input only using the 1/ 4" INPUT JACK (1) of channel 1.
3. Connect the loudspeakers to the channel 1 and channel 2 SPEAKER OUTPUTS (5, 7). THE TOTAL SPEAKER LOAD MUST BE AT LEAST 4 OHMS PER CHANNEL. If you try to operate at less than 4 Ohms per channel, the amplifier will go into the protection mode and stop operation until you correct the load conditions.
4. With the LEVEL CONTROLS (12,15) set to zero (fully counterclockwise), switch the power on. Apply a signal to the input. The level of the input signal should be as high as you will ever need it to be. This way, it will be as high above the amplifier's noise floor as possible, ensuring an excellent performance and signal to noise ratio. Adjust the LEVEL CONTROLS for each channel to achieve the desired maximum listening level. Note, when the clip LEDs light, there is distortion present in the amplifier's output section. If a clip LED remains on or flashes repeatedly, reduce the signal level by lowering the input level control for the channel that is clipping or reduce the level at the source.

Mono Bridge Operation

Follow these instructions to bridge the unit's output. Bridging the amplifier converts the unit to a monophonic or single channel amplifier. The amplifier can be used with 8 Ohm or higher loads only in Mono Bridge mode. This mode is used to provide a higher voltage with greater headroom to your speaker. Before setting your amplifier for Mono Bridge operation, make sure that your speaker can handle the high power level provided by the amplifier in Mono Bridge mode.

CAUTION: VOLTAGE OVER 100 VOLTS MAY BE PRODUCED AT THE BRIDGE OUTPUT TERMINALS IN THIS MODE.

1. With the power off, set the OPERATION MODE SWITCH (3) to the BRIDGE position.
2. With the power off, connect your input cables to channel 1 input only using the 1/4" INPUT JACK (1) of channel 1.
3. Connect the loudspeaker to the BRIDGE SPEAKER OUTPUT (6) only. Be sure the polarity of your connection is correct. The total speaker load must be at least 8 Ohms or above. If you try to operate at less than 8 Ohms in the Mono Bridge mode, the amplifier will go into the protection mode and stop operation until you correct the load conditions.
4. With the CHANNEL 1 LEVEL CONTROL (15) set to zero (fully counterclockwise), switch the power on. Apply a signal to the input. The level of the input signal should be as high as you will ever need it to be. This way, it will be as high above the amplifier's noise floor as possible, ensuring an excellent performance and signal to noise ratio. Adjust the LEVEL CONTROL (15) for channel 1 to achieve the desired maximum listening level. Note, when the clip LEDs light, there is distortion present in the amplifier's output section. If a clip LED remains on or flashes repeatedly, reduce the signal level by lowering the input level control for channel 1 or reduce the level at the source. During Mono Bridge operation, the channel 2 level is inactive, however, both channels LEDs will flash simultaneously and show output conditions.

Using the Ground Lift Switch

Depending on your system configuration, sometimes applying the ground will create a quieter signal path. Sometimes lifting the ground can eliminate ground loops and hum to create a quieter signal path.

1. With the power amp on, listen to the system in idle mode (no signal present) with the ground applied (the GROUND LIFT SWITCH (4) in the left position).
2. Turn the power off before moving the GROUND LIFT SWITCH (4). Lift the ground by moving the GROUND LIFT SWITCH to the right, turn the power back on and listen to determine which position will provide a signal free of background noise and hum. Keep the GROUND LIFT SWITCH in the ground position if the noise level remains the same in either position.

CAUTION: DO NOT TERMINATE THE AC GROUND ON THE POWER AMPLIFIER IN ANY WAY. TERMINATION OF THE AC GROUND CAN BE HAZARDOUS.

SPECIFICATIONS

	X1	X2	X3	X4
Output Power EIA:				
1kHz @ 1% THD, Wrms				
Both Channels Driven 8Ω	85	140	200	200
Both Channels Driven 4Ω	110	200	300	300
Mono Bridge 8Ω	220	400	600	600
Dynamic Headroom, dB:				
At8Ω	1.4	1.5	1.6	1.6
At4Ω	1.9	2.0	2.2	2.2
Frequency Response	30 Hz - 50 kHz			
Total Harmonic Distortion	Iess than 0.05%, typical 0.02% at 1 kHz			
Signal to Noise ratio	100 dB below rated power @ 8Ω			
Damping factor	greater than 200 @ 8Ω			
Slew rate	20 V/µS			
Voltage gain, dB	28	30	32	32
Input Sensitivity (for rated power at 8 Ω)	1 Vrms			
Input Impedance Unbalanced	10 kΩ			
Input Impedance Balanced	20 kΩ			
Power consumption, W (at rated power at 4Ω, both channels driven)	500	800	1200	1200
AC Power Requirements	110-120 V / 60 Hz and 220-240 V / 50 Hz			
Indicators	1 Power LED			
	1 Protect LED			
	1 Signal LED per Channel (for X1, X2, X3)			
	1VU-meter per Channel (for X4)			
Cooling	Fan, Front-to-Rear Forced Air			
Protection	Short Circuit, DC, Thermal Cut-off, Sub/Ultrasonic Frequency Filters, Turn-on Delay, Main Fuse, Secondary DC Fuses			
Connectors:				
Balanced/ Unbalanced lnputs	1/4" Jack			
Speaker Outputs	5-way Binding Posts			
Dimensions:				
X1, X2, X3	19"W x 10.75"D x 3.5"H (483 x 273 x 89 mm)			
X4	19"W x 10.75"D x 5.25"H (483 x 273 x 133 mm)			
Weight	16.3 lbs	17.8 lbs	20.2 lbs	21.6 lbs
	7.4 kg	8.1 kg	9.2 kg	9.8 kg

*Specifications and design are subject to change without notice for purpose of improvement

TROUBLESHOOTING

SYMPTOM	CAUSE	SOLUTION
UNIT DOES NOT PRODUCE SOUND. POWER LED DOES NOT LIGHT.	• POWER SWITCH NOT IN ON POSITION. • POWER CABLE NOT CONNECTED TO AMPLIFIER OR TO OUTLET. • AC OUTLET NOT ACTIVE. • MAIN AMPLIFIER FUSE DEFECTIVE	• MOVE POWER SWITCH TO ON POSITION. • CONNECT POWER CABLE TO AC SUPPLY. • CHECK CONDITION OF OUTLET. • REPLACE AMPLIFIER MAIN POWER FUSE ON REAR PANEL WITH CORRECT TYPE AND RATING.
POWER LED LIGHTS, BUT NO SOUND IS PRODUCED BY AMPLIFIER.	• NO INPUT SOURCE SIGNAL. • INPUT SOURCE NOT CONNECTED. • INPUT CONNECTING CABLE DEFECTIVE. • SPEAKER(S) NOT CONNECTED. • SPEAKER CABLE DEFECTIVE. • SPEAKER SYSTEM(S) INOPERATIVE. • AMPLIFIER'S LEVEL CONTROLS ARE SET TO ZERO	• CHECK FOR PROPER FUNCTION OF INPUT SOURCE DEVICE. • CHECK INPUT CABLES AND CONNECTIONS. REPLACE QUESTIONABLE CABLES WITH KNOWN GOOD CABLES. • CHECK SPEAKER CABLES AND CONNECTIONS. REPLACE QUESTIONABLE CABLES WITH KNOWN GOOD CABLES. • CHECK OPERATING CONDITION AND STATUS OF SPEAKER SYSTEM (S). BE SURE THE LEVEL CONTROLS ARE PROPERLY SET.
SOUND IS PRESENT BUT VOLUME IS TOO LOW EVEN THOUGH SOURCE DEVICE IS SET TO A HIGH LEVEL.	• AMPLIFIER INPUT LEVEL CONTROLS ARE SET TOO LOW. • WRONG PIN CONNECTIONS IN CABLES.	• ADJUST LEVEL CONTROLS AS PER INSTRUCTIONS. • USE CORRECT CABLES (AS SHOWN ON BACK OF UNIT).
LOUD 50/60 HZ OR 100/120 HZ HUM IS HEARD AT ALL TIMES THROUGH THE SPEAKER SYSTEMS.	• IMPROPER OR DEFECTIVE GROUND CONNECTION AT INPUTS. IMPROPER OR DEFECTIVE GROUND AT INPUT SOURCE DEVICE(S). • IMPROPER OR DEFECTIVE GROUND CONNECTION ON AC OUTLET. • GROUND LOOP THROUGH AC LINE CONNECTION/RACK MOUNTING.	• CHECK FOR PROPER AC LINE GROUND ON POWER AMP AND ALL INPUT DEVICES. • CHECK INPUT CABLES FOR ALL SOURCE DEVICES AND SIGNAL PROCESSING AS WELL AS INPUT CABLES TO POWER AMPLIFIER. CHECK POSITION OF GROUND LIFT SWITCH AS PER INSTRUCTIONS FOR LIFTING THE GROUND. • NEVER LIFT THE AC LINE GROUND ON THE POWER AMPLIFIER. IF YOU ARE NOT TOTALLY FAMILIAR WITH GROUND LIFTING OR UNIFICATION PROCEDURES, DO NOT ATTEMPT THEM WITHOUT FIRST CONSULTING YOUR DEALER OR A QUALIFIED SOUND TECHNICIAN FOR MORE INFORMATION ON GROUNDING. IMPROPERLY DONE, SUCH PROCEDURES CAN POSE A SAFETY AND / OR FIRE HAZARD.
SOUND IS DISTORTED.	• DISTORTION OCCURRING IN SOURCE DEVICE. • INPUT LEVEL IS SET TOO HIGH.	• CHECK CLIP INDICATORS ON INPUT SOURCE DEVICES AND RESET LEVELS IF NECESSARY TO ELIMINATE DISTORTION. • ADJUST LEVEL CONTROLS AS PER INSTRUCTIONS.
PROTECT LED REMAINS LIT OR GOES ON AND OFF INTERMITTENTLY AFTER USING AMPLIFIER FOR A SHORT TIME.	• UNIT IS OPERATING AT EXCESSIVELY HIGH TEMPERATURE. • EXTREMELY LOW SPEAKER IMPEDANCE. • SHORT IN SPEAKER CONNECTORS, SPEAKER CABLE OR SPEAKER SYSTEM.	• CHECK THAT AMPLIFIER IS ADEQUATELY VENTILATED ON THE FRONT AND REAR PANELS WHERE THE AIR VENTS AND FANS ARE LOCATED. IF OVERHEATED, LET THE AMPLIFIER COOL DOWN BEFORE APPLYING AN INPUT SIGNAL. • CHECK THE POSITION OF OPERATION MODE SWITCH. BE SURE THAT THE SPEAKER CONNECTIONS ARE MADE IN ACCORDANCE WITH THE SWITCH SETTING. • VERIFY SPEAKER SYSTEM IMPEDANCES. BE SURE THE TOTAL SPEAKER SYSTEM IMPEDANCE IS AT LEAST 4 OHMS PER CHANNEL WHEN THE OPERATION MODE SWITCH IS IN THE STEREO POSITION OR PARALLEL MONO POSITION. IF THE SWITCH IS IN THE BRIDGE MODE, THE IMPEDANCE MUST BE AT LEAST 8 OHMS. IF YOU ARE NOT SURE OF YOUR TOTAL SPEAKER IMPEDANCE LOAD, CONTACT YOUR DEALER FOR MORE INFORMATION. • CHECK CONDITION OF SPEAKER CABLES. • IF USING BARE WIRE CONNECTIONS ON THE OUTPUTS OF THE AMPLIFIER, BE SURE THAT NO STRANDS FROM ONE CONNECTOR ARE TOUCHING ANY OTHER CONNECTOR.
FUSE BLOWS INTERMITTENTLY.	• SPEAKER LOAD IMPEDANCE IS TOO LOW. • TYPE OR RATING OF THE FUSE IS NOT CORRECT.	• CHECK FOR SHORTS ON THE OUTPUTS. • CHECK YOUR SPEAKER IMPEDANCE (INFO FROM DEALER). • CHECK THAT THE FUSE TYPE AND RATING IS CORRECT.
PROTECT LED STAYS ON WITH NO SPEAKERS CONNECTED AND WITH THE AMPLIFIER COOLED DOWN.	• FAILED AMPLIFIER.	• CONTACT THE GEMINI SERVICE DEPARTMENT OR YOUR AUTHORIZED DEALER TO SPEAK TO A QUALIFIED SERVICE TECHNICIAN. IN THE U.S.A. CALL TOLL FREE 1-800-476-8633

PARTS LIST

X-1

	PART#	QUANTITY	NAME
1	012-029	1	PANEL CONTROL
2	021-463	1	MAIN CHASSIS
3	031-048	1	TOP COVER
4	022-861	2	MOUNTING BRACKET
5	041-446	2	HEAT SINK
6	041-449	1	HEAT SINK (D)
7	151-131	1	AIR GUIDE
8			
9	003-111	2	KNOB ROTARY (SMALL)
10	003-612	2	SNAP RIVET
11	003-748	6	LED HOUSING
12	047-496	3	PCB SUPPORT
13	049-206	4	PAD FOOT
14			
15	153-217	1	POLYFORM
16	196-127	3	SERIAL NO:LABEL
17	255-200	1	GIFT BOX
18	157-996	1	OWNER'S MANUAL
19	156-089	1	WARRANTY CARD
20			
21			
22	099-232	2	LABEL-GREEN
23	099-233	2	LABEL-RED
24	099-234	2	LABEL-YELLOW
25	099-238	2	UK LABEL
26	095-057	3	VDE LABEL
27	099-167	1	A LABEL
28	099-169	1	V LABEL
29	099-014	1	LABEL-MADE IN TAIWAN
30	099-214	1	LABEL-MADE IN CHINA
31			
32	190-062	1	SILICON GEL
33	160-044	1	PE BAG 160×250mm
34	160-052	1	PE BAG 650×650mm
35	160-009	1	PE BAG 23×30cm
36			
37	121-007A	10	BAND-HEAD TAPPING SCREW BTB-3 3×6(AB)
38	110-138	6	BAND-HEAD TAPPING SCREW BTS-2 3×8(B)
39	111-046A	2	BAND-HEAD TAPPING SCREW BTS-3 3×6(AB)
40	110-187A	2	BAND-HEAD TAPPING SCREW/TWIN SCREW 3×12(AB)
41	111-044A	4	BAND-HEAD TAPPING SCREW ("NUT") BTS-3 3×10(AB)
42	111-060	1	PAN-HEAD TAPPING SCREW PTS-3 4×8(N)
43	102-161	9	PAN-HEAD MACHINE SCREW 3×12(Y)
44	102-162	1	PAN-HEAD MACHINE SCREW 4×18(Y)
45	102-111	2	PAN-HEAD MACHINE SCREW PMS 5×8(B)
46	131-081	1	NUT/WASHER3ϕ(B)
47	107-022A	4	BAND-HEAD MACHINE SCREW M4×15(AB)
48	131-074	4	NUT (KNUT)4ϕ(B)
48-1	142-008	2	PLAIN WASHER4ϕ(Y)
48-2	143-008	2	SPRING WASHER4ϕ(Y)
49			
50	170-363	1	MASTER CARTON
1	262-328	1	PRINTED CIRCUIT BOARD X4-1
2	262-329	1	PRINTED CIRCUIT BOARD X4-2
3			
4	074-163	2	INTEGRATED CIRCUIT N JM4558DD
5			INTEGRATED CIRCUIT OR BA15218
6			INTEGRATED CIRCUIT OR 5218A

7			
8	076-002	6	SILICON TRANSISTORS 2SC945 (Q)(P)
9	076-003		SILICON TRANSISTORS OR 2SC1815 (Y)(GR)
10	076-020	5	SILICON TRANSISTORS 2SA733 (Q)(P)
11	076-023		SILICON TRANSISTORS OR 2SA1015 (GR)(Y)
12			
13			
14			
15	076-117	2	SILICON TRANSISTOR 2SA1943(O) OR (R)
16			SILICON TRANSISTOR OR 2SA1429(O) OR (R)
17	076-118	2	SILICON TRANSISTOR 2SC5200(O) OR (R)
18			SILICON TRANSISTOR OR 2SD2155(O) OR (R)
19	076-099	2	SILICON TRANSISTOR 2SA1837
20	076-073		SILICON TRANSISTOR OR 2SA1306
21	076-100	4	SILICON TRANSISTOR 2SC4793
22	076-072		SILICON TRANSISTOR OR 2SC3298(Y)
23	076-101	2	SILICON TRANSISTOR 2SA1145(Y) OR (R)
24	076-034		SILICON TRANSISTOR OR 2SA949(Y) OR (R)
25			
26	076-102	4	SILICON TRANSISTOR 2SC2705(Y) OR (O)
27	076-037		SILICON TRANSISTOR OR 2SC2229(Y) OR (O)
28	076-134	1	SILICON TRANSISTOR MPSA13
29			
30	086-019	1	BRIDGE RECTIFIER KBPC804W
31	086-512	1	RELAY SRET-202DP

32			
33	079-034	4	RECTIFIER DIODE 1N4004 OR
34	079-003	16	SILICON DIODE 1N4148
35	079-012	2	ZENER DIODE 1/2W 12V (RD12EB,HZ12B2)
36	079-019	1	ZENER DIODE 1/2W 5.6V (RD5.6EB2)
37	079-056	2	ZENER DIODE 1/2 W 3.3V
38	079-037	1	ZENER DIODE 1/2W 22V (RD22EB2,MTZ22B)
39			
40	080-085	4	LED (RED) 5ϕ
41	080-110	1	LED (YELLOW) 5ϕ
42	080-086	3	LED (GREEN) 5ϕ
43			
44	071-220	2	ROTARY VR 10KA L:15MM
45	081-023	1	SLIDE SWITCH 2P2C UL
46	081-030	1	SLIDE SWITCH
47	081-041	1	SLIDE SWITCH
48	083-099	1	POWER SWITCH
49			
50	001-613	1	DC FAN 24V (80×80×25mm)
51	092-078	2	6.3ϕPHONE JACK
52	092-105	1	AC INLET (IEC SOCKET+FUSE)
53			
54	100-058	2	FUSE 20mm UL 6A AC250V
55	100-063	1	FUSE 20mm VBS UTE 4A 250V
56	100-064	1	FUSE 20mm VBS UTE 2A 250V
57	161-172	1	4P SPEAKER TERMINAL
58	161-109	4	FUSE CLIP JH-6
59			
60	059-232	1	POWER TRANSFORMER EI-86×65
61	147-024	2	COIL 1.3μH 1.0ϕ×9ϕ×9 1/2T
62			
63	093-370	1	AC CORD SVT AWG 18×3C VW-1 UL
64	093-371	1	AC CORD 220V VDE
65	093-410	1	AC CORD ARGENTINA
66	093-369	1	AC CORD 230V BS

67			
68	073-506	2	METAL FILM RESISTORS 1/8W 10KΩ 2%
69	063-005	1	THERMISTOR PTH9M04BE222TS2F333
70	062-023	4	WIRE WOUND RESISTOR (CERAMIC) 3W 0.15Ω
71			
72	061-032	1	METAL FILM RESISTORS 2W 1.5KΩ
73	061-101	2	METAL FILM RESISTORS 1W 8.2Ω
74	061-105	3	METAL FILM RESISTORS 1W 6.8KΩ
75	061-113	2	METAL FILM RESISTORS 1/4W 51.1KΩ 1%
76	061-108	2	METAL FILM RESISTORS 1/4W 1MΩ 1%
77	061-106	2	METAL FILM RESISTORS 1/4W 2.21KΩ 1%
78			
79	060-218	4	CARBON FILM RESISTORS 1/4W 10Ω
80	060-237	2	CARBON FILM RESISTORS 1/4W 62Ω
81	060-245	6	CARBON FILM RESISTORS 1/4W 130 Ω
82	060-253	2	CARBON FILM RESISTORS 1/4W 300Ω
83	060-259	8	CARBON FILM RESISTORS 1/4W 510 Ω
84			
85	060-279	6	CARBON FILM RESISTORS 1/4W 2.2KΩ
86	060-289	2	CARBON FILM RESISTORS 1/4W 5.6KΩ
87	060-300	6	CARBON FILM RESISTORS 1/4W 16KΩ
88	060-306	8	CARBON FILM RESISTORS 1/4W 30KΩ
89	060-315	5	CARBON FILM RESISTORS 1/4W 68KΩ
90			
91	050-153	2	ELECTROLYTIC CAPACITORS N.P 10μ/50V
92	050-197	1	ELECTROLYTIC CAPACITORS N.P 100μ/10V
93	050-049	2	ELECTROLYTIC CAPACITORS 100μ/16V
94	050-058	2	ELECTROLYTIC CAPACITORS 220μ/16V
95	050-120	1	ELECTROLYTIC CAPACITORS 220μ/25V
96	050-198	2	ELECTROLYTIC CAPACITORS 6800μ/50V
97			
98	051-148	2	CERAMIC CAPACITOR 0.01μ/500V
99	051-018	4	CERAMIC CAPACITOR 22P/50V
100	051-024	2	CERAMIC CAPACITOR 39 P/50V
101	051-034	12	CERAMIC CAPACITOR 100P/50V
102	051-156	1	CERAMIC CAPACITOR UL 0.0047μ/400V
103			
104	054-013	4	POLYESTER CERAMIC CAPACITOR 0.01μ/50V
105	054-022	2	POLYESTER CERAMIC CAPACITOR 0.047μ/50V
106	054-026	2	POLYESTER CERAMIC CAPACITOR 0.1μ/50V
107	054-030	4	POLYESTER CERAMIC CAPACITOR 0.22μ/50V
108	054-071	2	POLYESTER CERAMIC CAPACITOR 0.1μ/250V
109			
110	092-030		12P(P=2.5mm), CONNECTOR BASE B2B-XH-A
111			
112	093-416	1	GROUND WIRE WITH RING TONGUE (GRN/YLW) 150mm
113	093-384	1	GROUND WIRE WITH RING TONGUE (BLACK) 210mm
114			
115	209-004	1	LEAD WIRE (WHITE) UL1015#18AWG 6×6 310mm
116	202-110	1	LEAD WIRE (RED) UL1015#18AWG 6×6 310mm

117			
118	060-703	2	JUMPER WIRE 0.7ϕ T/ 52mm P=5mm
119	060-703	2	JUMPER WIRE 0.7ϕ T/ 52mm P=6mm
120	060-703	4	JUMPER WIRE 0.7ϕ T/ 52mm P=7.5mm
121	060-703	19	JUMPER WIRE 0.7ϕ T/ 52mm P=10mm
122	060-703	10	JUMPER WIRE 0.7ϕ T/ 52mm P=12.5mm
123	060-703	10	JUMPER WIRE 0.7ϕ T/ 52mm P=15mm
124	060-703	5	JUMPER WIRE 0.7ϕ T/ 52mm P=20mm
125			
126	146-509	4	PIN CONNECTOR
127			
128	190-075	2	HEAT-SHRINK TUBING UL 28ϕ 35mm
129	190-230	1	HEAT-SHRINK TUBING UL 35ϕ 35mm
130	190-063	2	TUBE 1ϕ 30mm
131			
132	003-605	2	CABLE TIES CV-100

X-2

	PART#	QUANTITY	NAME
1	012-030	1	PANEL CONTROL
2	021-464	1	MAIN CHASSIS
3	031-048	1	TOP COVER
4	022-861	2	MOUNTING BRACKET
5	041-447	2	HEAT SINK
6	041-449	1	HEAT SINK (D)
7	151-131	1	AIR GUIDE
8			
9	003-111	2	KNOB ROTARY (SMALL)
10	003-612	2	SNAP RIVET
11	003-748	6	LED HOUSING
12	047-496	3	PCB SUPPORT
13	049-206	4	PAD FOOT
14			
15	153-217	1	POLYFORM
16	196-128	3	SERIAL NO:LABEL
17	255-201	1	GIFT BOX
18	157-997	1	OWNER'S MANUAL
19	156-089	1	WARRANTY CARD
20			
21			
22	099-232	2	LABEL-GREEN
23	099-233	2	LABEL-RED
24	099-234	2	LABEL-YELLOW
25	099-238	2	UK LABEL
26	095-057	3	VDE LABEL
27	099-167	1	A LABEL
28	099-169	1	V LABEL
29	099-014	1	LABEL-MADE IN TAIWAN
30	099-214	1	LABEL-MADE IN CHINA
31			
32	190-062	1	SILICON GEL
33	160-044	1	PE BAG 160×250mm
34	160-052	1	PE BAG 650×650mm
35	160-009	1	PE BAG 23×30cm
36			
37	121-007A	10	BAND-HEAD TAPPING SCREW BTB-3 3×6(AB)
38	110-138	6	BAND-HEAD TAPPING SCREW BTS-2 3×8(B)
39	111-046A	2	BAND-HEAD TAPPING SCREW BTS-3 3×6(AB)
40	110-187A	2	BAND-HEAD TAPPING SCREW/TWIN SCREW 3×12(AB)

41	111-044A	4	BAND-HEAD TAPPING SCREW (“NUT”) BTS-3 3×10(AB)
42	111-060	1	PAN-HEAD TAPPING SCREW PTS-3 4×8(N)
43	102-161	13	PAN-HEAD MACHINE SCREW 3×12(Y)
44	102-162	1	PAN-HEAD MACHINE SCREW 4×18(Y)
45	102-111	2	PAN-HEAD MACHINE SCREW PMS 5×8(B)
46	131-081	1	NUT/WASHER3ϕ(B)
47	107-022A	4	BAND-HEAD MACHINE SCREW M4×15(AB)
48	131-074	4	NUT (KNUT)4ϕ(B)
48-1	142-008	2	PLAIN WASHER4ϕ(Y)
48-2	143-008	2	SPRING WASHER4ϕ(Y)
49			
50	170-364		MASTER CARTON
1	262-328	1	PRINTED CIRCUIT BOARD X4-1
2	262-329	1	PRINTED CIRCUIT BOARD X4-2
3	**ICs**		
4	074-163	2	INTEGRATED CIRCUIT NJM4558DD
5			INTEGRATED CIRCUIT OR BA15218
6			INTEGRATED CIRCUIT OR 5218A
7	**TRANSISTORS**		
8	076-002	6	SILICON TRANSISTORS 2SC945 (Q)(P)
9	076-003		SILICON TRANSISTORS OR 2SC1815 (Y)(GR)
10	076-020	5	SILICON TRANSISTORS 2SA733 (Q)(P)
11	076-023		SILICON TRANSISTORS OR 2SA1015 (GR)(Y)
12			
13			
14			
15	076-099	2	SILICON TRANSISTOR 2SA1837
16	076-073		SILICON TRANSISTOR OR 2SA1306
17	076-100	4	SILICON TRANSISTOR 2SC4793
18	076-072		SILICON TRANSISTOR OR 2SC3298(Y)
19	076-101	2	SILICON TRANSISTOR 2SA1145(Y) OR (R)
20	076-034		SILICON TRANSISTOR OR 2SA949(Y) OR (R)
21	076-102	4	SILICON TRANSISTOR 2SC2705(Y) OR (O)
22	076-037		SILICON TRANSISTOR OR 2SC2229(Y) OR (O)
23	076-056	4	SILICON TRANSISTORS 2SA1516 (O)(R)
24	076-060		SILICON TRANSISTORS OR 2SA1386 (O)(R)
25	076-114		SILICON TRANSISTORS OR 2SA1962 (O)(R)
26	076-057	4	SILICON TRANSISTORS 2SC3907 (O)(R)
27	076-061		SILICON TRANSISTORS OR 2SC3519 (O)(R)
28	076-115		SILICON TRANSISTORS OR 2SC5242 (O)(R)
29	076-134	1	SILICON TRANSISTOR MPSA13
30			
31	086-029	1	BRIDGE RECTIFIER KBPC1004W
32	086-512	1	RELAY SRET-202DP
33	**DIODES**		
34	079-034	4	RECTIFIER DIODE 1N4004
35	079-003	16	SILICON DIODE 1N4148
36	079-012	2	ZENER DIODE 1/2W 12V (RD12EB,HZ12B2)
37	079-019	1	ZENER DIODE 1/2W 5.6V (RD5.6EB2)
38	079-056	2	ZENER DIODE 1/2 W 3.3V
39	079-037	1	ZENER DIODE 1/2W 22V (RD22EB2,MTZ22B)
40	**LEDS**		
41	080-085	4	LED (RED) 5ϕ
42	080-110	1	LED (YELLOW) 5ϕ
43	080-086	3	LED (GREEN) 5ϕ
44	**SWITCHES**		
45	071-220	2	ROTARY VR 10KA L:15MM
46	081-023	1	SLIDE SWITCH 2P2C UL
47	081-030	1	SLIDE SWITCH
48	081-041	1	SLIDE SWITCH
49	083-099	1	POWER SWITCH

50			
51	001-613	1	DC FAN 24V (80×80×25mm)
52	092-078	2	6.3ϕPHONE JACK
53	092-105	1	AC INLET (IEC SOCKET +FUSE)
54			
55	100-056	2	FUSE 20mm UL 8A AC250V
56	100-071	1	FUSE 20mm VBS UTE 6.3A 250V
57	100-068	1	FUSE 20mm VBS UTE 3.15A 250V
58			
59	161-172	1	4P SPEAKER TERMINAL
60	161-109	4	FUSE CLIP JH-6
61			
62	059-233	1	POWER TRANSFORMER EI-86×80
63	147-024	2	COIL 1.3μH 1.0ϕ×9ϕ×9 1/2T
64			
65	093-370	1	AC CORD SVT AWG 18×3C VW-1 UL
66	093-371	1	AC CORD 220V VDE
67	093-410	1	AC CORD ARGENTINA
68	093-369	1	AC CORD 230V BS
69	073-506	2	METAL FILM RESISTORS 1/8W 10KΩ 2%
70	063-005	1	THERMISTOR PTH9M04BE222TS2F333
71	062-024	8	WIRE WOUND RESISTOR (CERAMIC) 3W 0.22Ω
72	**METAL FILM RESISTORS**		
73	061-102	2	METAL FILM RESISTORS 2W 8.2Ω
74	061-030	1	METAL FILM RESISTORS 2W 2.2KΩ
75	061-031	3	METAL FILM RESISTORS 1W 10KΩ
76	061-111	2	METAL FILM RESISTORS 1/4W 69.8KΩ 1%
77	061-108	2	METAL FILM RESISTORS 1/4W 1MΩ 1%
78	061-106	2	METAL FILM RESISTORS 1/4W 2.21KΩ 1%

79	**CARBON FILM RESISTORS**		
80	060-218	4	CARBON FILM RESISTORS 1/4W 10Ω
81	060-237	2	CARBON FILM RESISTORS 1/4W 62Ω
82	060-245	6	CARBON FILM RESISTORS 1/4W 130Ω
83	060-253	2	CARBON FILM RESISTORS 1/4W 300Ω
84	060-259	8	CARBON FILM RESISTORS 1/4W 510Ω
85			
86	060-279	4	CARBON FILM RESISTORS 1/4W 2.2KΩ
87	060-289	3	CARBON FILM RESISTORS 1/4W 5.6KΩ
88	060-300	6	CARBON FILM RESISTORS 1/4W 16KΩ
89	060-306	8	CARBON FILM RESISTORS 1/4W 30KΩ
90	060-315	5	CARBON FILM RESISTORS 1/4W 68KΩ
91	**ELECTROLYTIC CAPACITORS**		
92	050-153	2	ELECTROLYTIC CAPACITORS N.P 10μ/50V
93	050-197	1	ELECTROLYTIC CAPACITORS N.P 100μ/10V
94	050-049	2	ELECTROLYTIC CAPACITORS 100μ/16V
95	050-058	2	ELECTROLYTIC CAPACITORS 220μ/16V
96	050-120	1	ELECTROLYTIC CAPACITORS 220μ/25V
97	050-154	2	ELECTROLYTIC CAPACITORS 6800μ/63V
98	**CERAMIC CAPACITORS**		
99	051-148	2	CERAMIC CAPACITOR 0.01μ/500V
100	051-018	4	CERAMIC CAPACITOR 22P/ 50V
101	051-024	2	CERAMIC CAPACITOR 39 P/50V
102	051-034	12	CERAMIC CAPACITOR 100P/50V
103	051-156	1	CERAMIC CAPACITOR UL 0.0047μ/400V

104			
105	054-013	4	POLYESTER CERAMIC CAPACITOR 0.01μ/50V
106	054-022	2	POLYESTER CERAMIC CAPACITOR 0.047μ/50V
107	054-026	2	POLYESTER CERAMIC CAPACITOR 0.1μ/50V
108	054-030	4	POLYESTER CERAMIC CAPACITOR 0.22μ/50V
109	054-071	2	POLYESTER CERAMIC CAPACITOR 0.1μ/250V
110			
111	092-030	1	2P(P=2.5mm), CONNECTOR BASE B2B-XH-A
112			
113	093-416	1	GROUND WIRE WITH RING TONGUE (GRN/YLW) 150mm
114	093-384	1	GROUND WIRE WITH RING TONGUE (BLACK) 210mm
115			
116	209-004	1	LEAD WIRE (WHITE) UL1015#18AWG 6×6 310mm
117	202-110	1	LEAD WIRE (RED) UL1015#18AWG 6×6 310mm
118			
119	060-703	2	JUMPER WIRE 0.7ϕ T/ 52mm P=5mm
120	060-703	2	JUMPER WIRE 0.7ϕT/ 52mm P=6mm
121	060-703	4	JUMPER WIRE 0.7ϕT/ 52mm P=7.5mm
122	060-703	19	JUMPER WIRE 0.7ϕ T/ 52mm P=10mm
123	060-703	10	JUMPER WIRE 0.7ϕ T/ 52mm P=12.5mm
124	060-703	10	JUMPER WIRE 0.7ϕT/ 52mm P=15mm
125	060-703	5	JUMPER WIRE 0.7ϕ T/ 52mm P=20mm
126	146-509	4	PIN CONNECTOR
131			
132	003-605	2	CABLE TIES CV-100

PART#	QUANTITY	NAME
		X-3
1	012-031	1	PANEL CONTROL
2	021-465	1	MAIN CHASSIS
3	031-048	1	TOP COVER
4	022-861	2	MOUNTING BRACKET
5	041-448	2	HEAT SINK
6	041-449	1	HEAT SINK (D)
7	151-131	1	AIR GUIDE
8			
9	003-111	2	KNOB ROTARY (SMALL)
10	003-612	2	SNAP RIVET
11	003-748	6	LED HOUSING
12	047-496	3	PCB SUPPORT
13	049-206	4	PAD FOOT
14			
15	153-217	1	POLYFORM
16	196-129	3	SERIAL NO:LABEL
17	255-202	1	GIFT BOX
18	157-998	1	OWNER'S MANUAL
19	156-089	1	WARRANTY CARD
20			
21			
22	099-232	2	LABEL-GREEN
23	099-233	2	LABEL-RED
24	099-234	2	LABEL-YELLOW
25	099-238	2	UK LABEL
26	095-057	3	VDE LABEL
27	099-167	1	A LABEL
28	099-169	1	V LABEL
29	099-014	1	LABEL-MADE IN TAIWAN
30	099-214	1	LABEL-MADE IN CHINA
31			
32	190-062	1	SILICON GEL
33	160-044	1	PE BAG 160×250mm
34	160-052	1	PE BAG 650×650mm
35	160-009	1	PE BAG 23×30cm
36			
37	121-007A	10	BAND-HEAD TAPPING SCREW BTB-3 3×6(AB)
38	110-138	6	BAND-HEAD TAPPING SCREW BTS-2 3×8(B)
39	111-046A	2	BAND-HEAD TAPPING SCREW BTS-3 3×6(AB)
40	110-187A	2	BAND-HEAD TAPPING SCREW/TWIN SCREW 3×12(AB)

43	102-161	13	PAN-HEAD MACHINE SCREW 3×12(Y)
44	102-162	1	PAN-HEAD MACHINE SCREW 4×18(Y)
45	102-111	2	PAN-HEAD MACHINE SCREW PMS 5×8(B)
46	131-081	1	NUT/WASHER3ϕ(B)
47	107-022A	4	BAND-HEAD MACHINE SCREW M4×15(AB)
48	131-074	4	NUT (KNUT)4ϕ(B)
48-1	142-008	2	PLAIN WASHER4ϕ(Y)
48-2	143-008	2	SPRING WASHER4ϕ(Y)
49			
50	170-365	1	MASTER CARTON
1	262-328	1	PRINTED CIRCUIT BOARD X4-1
2	262-329	1	PRINTED CIRCUIT BOARD X4-2
3			
4	074-163	2	INTEGRATED CIRCUIT NJM4558DD
5			INTEGRATED CIRCUIT OR BA15218
6			INTEGRATED CIRCUIT OR 5218A
7			
8	076-002	6	SILICON TRANSISTORS 2SC945 (Q)(P)
9	076-003		SILICON TRANSISTORS OR 2SC1815 (Y)(GR)
10	076-020	5	SILICON TRANSISTORS 2SA733 (Q)(P)
11	076-023		SILICON TRANSISTORS OR 2SA1015 (GR)(Y)
50	170-365	1	MASTER CARTON
12			
13			
14			
15	076-117	4	SILICON TRANSISTOR 2SA1943(O) OR (R)
16			SILICON TRANSISTOR OR 2SA1429(O) OR (R)
17	076-118	4	SILICON TRANSISTOR 2SC5200(O) OR (R)
18			SILICON TRANSISTOR OR 2SD2155(O) OR (R)
19	076-099	2	SILICON TRANSISTOR 2SA1837
20	076-073		SILICON TRANSISTOR OR 2SA1306
21	076-100	4	SILICON TRANSISTOR 2SC4793
22	076-072		SILICON TRANSISTOR OR 2SC3298(Y)
23	076-101	2	SILICON TRANSISTOR 2SA1145(Y) OR (R)
24	076-034		SILICON TRANSISTOR OR 2SA949(Y) OR (R)
25			
26	076-102	4	SILICON TRANSISTOR 2SC2705(Y) OR (O)
27	076-037		SILICON TRANSISTOR OR 2SC2229(Y) OR (O)
28	076-134	1	SILICON TRANSISTOR MPSA13
29			
30	086-030	1	BRIDGE RECTIFIER KBPC1504W
31	086-512	1	RELAY SRET-202DP
32			
33	079-034	4	RECTIFIER DIODE 1N4004
34	079-003	16	SILICON DIODE 1N4148
35	079-012	2	ZENER DIODE 1/2W 12V (RD12EB,HZ12B2)
36	079-019	1	ZENER DIODE 1/2W 5.6V (RD5.6EB2)
37	079-056	2	ZENER DIODE 1/2 W 3.3V
38	079-037	1	ZENER DIODE 1/2W 22V (RD22EB2,MTZ22B)

39			
40	080-085	4	LED (RED) 5ϕ
41	080-110	1	LED (YELLOW) 5ϕ
42	080-086	3	LED (GREEN) 5ϕ
43			
44	071-220	2	ROTARY VR 10KA L:15MM
45	081-023	1	SLIDE SWITCH 2P2C UL
46	081-030	1	SLIDE SWITCH
47	081-041	1	SLIDE SWITCH
48	083-099	1	POWER SWITCH
49			
50	001-613	1	DC FAN 24V (80×80×25mm)
51	092-078	2	

76	061-112	2	METAL FILM RESISTORS 1/4W 86.6KΩ 1%
77	061-108	2	METAL FILM RESISTORS 1/4W 1MΩ 1%
78	061-106	2	METAL FILM RESISTORS 1/4W 2.21KΩ 1%
79			
80	060-218	4	CARBON FILM RESISTORS 1/4W 10Ω
81	060-237	2	CARBON FILM RESISTORS 1/4W 62Ω
82	060-245	6	CARBON FILM RESISTORS 1/4W 130Ω
83	060-253	2	CARBON FILM RESISTORS 1/4W 300Ω
84	060-259	8	CARBON FILM RESISTORS 1/4W 510 Ω
85			
86	060-279	4	CARBON FILM RESISTORS 1/4W 2.2KΩ
87	060-289	3	CARBON FILM RESISTORS 1/4W 5.6KΩ
88	060-300	5	CARBON FILM RESISTORS 1/4W 16KΩ
89	060-306	9	CARBON FILM RESISTORS 1/4W 30KΩ
90	060-315	5	CARBON FILM RESISTORS 1/4W 68KΩ
91			
92	050-153	2	ELECTROLYTIC CAPACITORS N.P 10μ/50V
93	050-197	1	ELECTROLYTIC CAPACITORS N.P 100μ/10V
94	050-049	2	ELECTROLYTIC CAPACITORS 100μ/16V
95	050-120	1	ELECTROLYTIC CAPACITORS 220μ/25V
96	050-058	2	ELECTROLYTIC CAPACITORS 220μ/16V
97	050-200	2	ELECTROLYTIC CAPACITORS 6800μ/80V
98			
99	051-148	2	CERAMIC CAPACITOR 0.01μ/500V
100	051-018	4	CERAMIC CAPACITOR 22P/50V
101	051-024	2	CERAMIC CAPACITOR 39 /50V

102	051-034	12	CERAMIC CAPACITOR 100P/50V
103	051-156	1	CERAMIC CAPACITOR UL 0.0047μ/400V
104			
105	054-013	4	POLYESTER CERAMIC CAPACITOR 0.01μ/50V
106	054-022	2	POLYESTER CERAMIC CAPACITOR 0.047μ/50V
107	054-026	2	POLYESTER CERAMIC CAPACITOR 0.1μ/50V
108	054-030	4	POLYESTER CERAMIC CAPACITOR 0.22μ/50V
109	054-071	2	POLYESTER CERAMIC CAPACITOR 0.1μ/250V
110			
111	092-030	1	2P(P=2.5mm), CONNECTOR BASE B2B-XH-A
112			
113	093-416	1	GROUND WIRE WITH RING TONGUE (GRN/YLW) 150mm
114	093-384	1	GROUND WIRE WITH RING TONGUE (BLACK) 210mm
115			
116	209-004	1	LEAD WIRE (WHITE) UL1015#18AWG 6×6 310mm
117	202-110	1	LEAD WIRE (RED) UL1015#18AWG 6×6 310mm
118			
119	060-703	2	JUMPER WIRE 0.7ϕ T/ 52mm P=5mm
120	060-703	2	JUMPER WIRE 0.7ϕ T/ 52mm P=6mm
121	060-703	4	JUMPER WIRE 0.7ϕ T/ 52mm P=7.5mm
122	060-703	19	JUMPER WIRE 0.7ϕ T/ 52mm P=10mm
123	060-703	10	JUMPER WIRE 0.7ϕ T/ 52mm P=12.5mm
124	060-703	10	JUMPER WIRE 0.7ϕ T/ 52mm P=15mm
125	060-703	4	JUMPER WIRE 0.7ϕ T/ 52mm P=20mm
126	146-509	4	PIN CONNECTOR
127			
128	190-075	2	HEAT-SHRINK TUBING UL 28ϕ 35mm
129	190-230	1	HEAT-SHRINK TUBING UL 35ϕ 35mm
130	190-063	2	TUBE 1ϕ 30mm
131			
132	003-605	2	CABLE TIES CV-100

PART#	QUANTITY	NAME

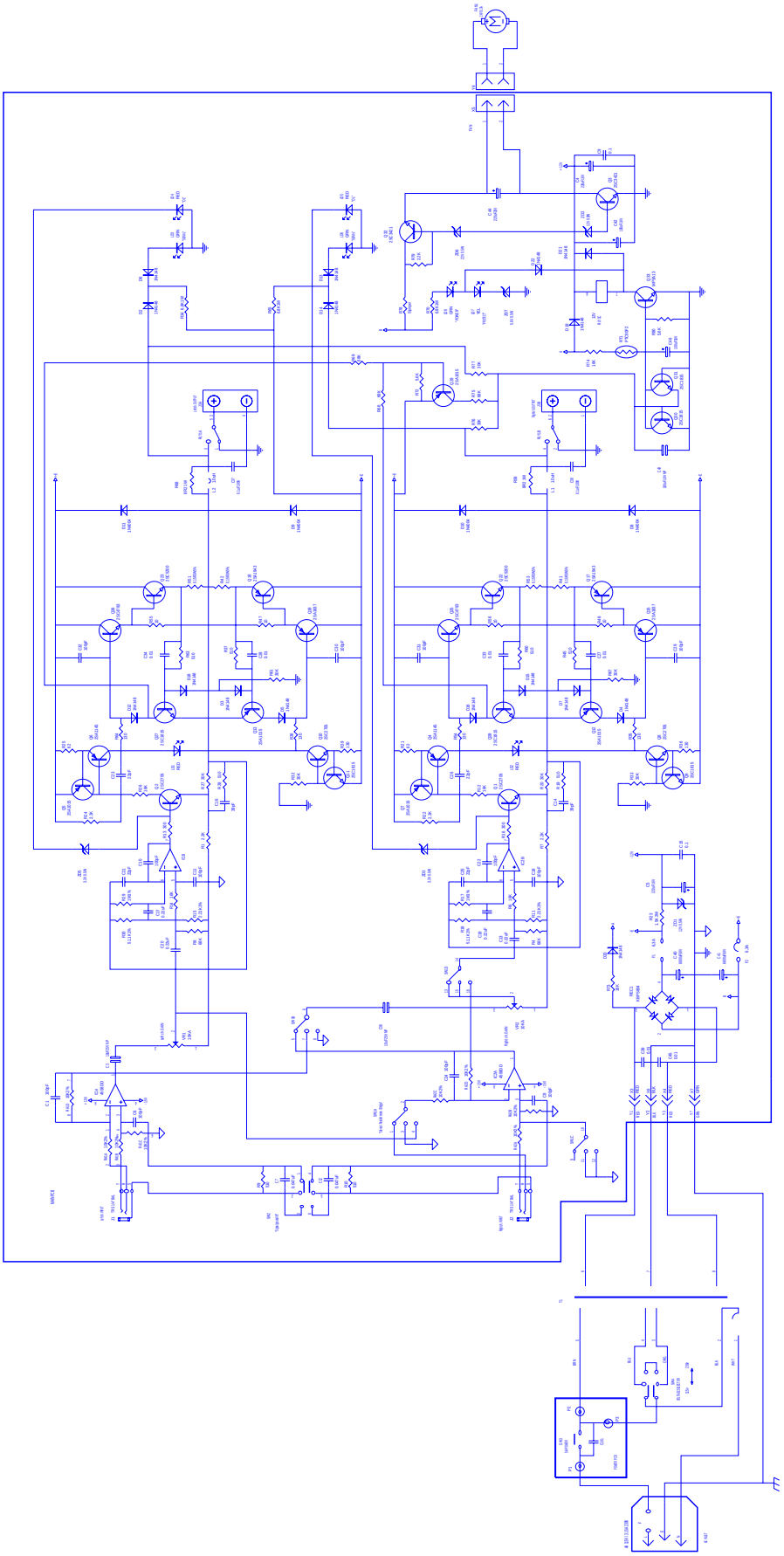
X-4

1	012-034	1	PANEL CONTROL
2	021-466	1	MAIN CHASSIS
3	031-048	1	TOP COVER
4	022-863	2	MOUNTING BRACKET
5	022-031	2	VU METER BRACKET
6	041-448	2	HEAT SINK
7	041-449	1	HEAT SINK (D)
8	151-131	1	AIR GUIDE
9			
10	003-111	2	KNOB ROTARY (SMALL)
11	003-612	2	SNAP RIVET
12	003-748	4	LED HOUSING
13	047-496	3	PCB SUPPORT
14	049-206	4	PAD FOOT
15			
16	153-217	1	POLYFORM
17	196-133	3	SERIAL NO:LABEL
18	255-206	1	GIFT BOX
19	257-003	1	OWNER'S MANUAL
20	156-089	1	WARRANTY CARD
21			
22	099-232	2	LABEL-GREEN
23	099-233	2	LABEL-RED
24	099-234	2	LABEL-YELLOW
25	099-238	2	UK LABEL
26	095-057	3	VDE LABEL
27	099-167	1	A LABEL
28	099-169	1	V LABEL
29	099-014	1	LABEL-MADE IN TAIWAN
30	099-214	1	LABEL-MADE IN CHINA
31			
32	190-062	1	SILICON GEL
33	160-044	1	PE BAG 160×250mm
34	160-052	1	PE BAG 650×650mm
35	160-009	1	PE BAG 23×30cm

36			
37	121-007A	14	BAND-HEAD TAPPING SCREW BTB-3 3×6(AB)
38	110-138	6	BAND-HEAD TAPPING SCREW BTS-2 3×8(B)
39	111-046A	2	BAND-HEAD TAPPING SCREW BTS-3 3×6(AB)
40	110-187A	2	BAND-HEAD TAPPING SCREW/TWIN SCREW 3×12(AB)
41	111-044A	4	BAND-HEAD TAPPING SCREW (“NUT”) BTS-3 3×10(AB)
42	111-060	1	PAN-HEAD TAPPING SCREW PTS-3 4×8(N)
43	102-161	13	PAN-HEAD MACHINE SCREW 3×12(Y)
44	102-162	1	PAN-HEAD MACHINE SCREW 4×18(Y)
45	102-111	2	PAN-HEAD MACHINE SCREW PMS 5×8(B)
46	131-081	1	NUT/WASHER3ϕ (B)
47	107-022A	4	BAND-HEAD MACHINE SCREW M4×15(AB)
48	131-074	4	NUT (KNUT)4ϕ (B)
48-1	142-008	2	PLAIN WASHER4ϕ (Y)
48-2	143-008	2	SPRING WASHER4ϕ (Y)
49			
50	170-360		MASTER CARTON
1	262-328	1	PRINTED CIRCUIT BOARD X4-1
2	262-329	1	PRINTED CIRCUIT BOARD X4-2
3			
4	074-163	2	INTEGRATED CIRCUIT NJM4558DD
5			INTEGRATED CIRCUIT OR BA15218
6			INTEGRATED CIRCUIT OR 5218A
7			
8	076-075	1	SILICON TRANSISTORS 2SA1358
9	076-077		SILICON TRANSISTORS OR 2SB631
10	076-002	6	SILICON TRANSISTORS 2SC945 (Q)(P)
11	076-003		SILICON TRANSISTORS OR 2SC1815 (Y)(GR)
12	076-020	5	SILICON TRANSISTORS 2SA733 (Q)(P)
13	076-023		SILICON TRANSISTORS OR 2SA1015 (GR)(Y)
14			
15			
16			
17	076-117	4	SILICON TRANSISTOR 2SA1943(O) OR (R)
18			SILICON TRANSISTOR OR 2SA1429(O) OR (R)
19	076-118	4	SILICON TRANSISTOR 2SC5200(O) OR (R)
20			SILICON TRANSISTOR OR 2SD2155(O) OR (R)
21	076-099	2	SILICON TRANSISTOR 2SA1837
22	076-073		SILICON TRANSISTOR OR 2SA1306
23	076-100	4	SILICON TRANSISTOR 2SC4793
24	076-072		SILICON TRANSISTOR OR 2SC3298(Y)
25			
26	076-101	2	SILICON TRANSISTOR 2SA1145(Y) OR (R)
27	076-034		SILICON TRANSISTOR OR 2SA949(Y) OR (R)
28	076-102	4	SILICON TRANSISTOR 2SC2705(Y) OR (O)
29	076-037		SILICON TRANSISTOR OR 2SC2229(Y) OR (O)
30	076-134	1	SILICON TRANSISTOR MPSA13
31			
32	086-030	1	BRIDGE RECTIFIER KBPC1504W
33	086-512	1	RELAY SRET-202DP
34	087-027	2	VU METER
35			
36	079-034	4	RECTIFIER DIODE 1N4004
37	079-003	16	SILICON DIODE 1N4148
38	079-012	2	ZENER DIODE 1/2W 12V (RD12EB,HZ12B2)
39	079-019	1	ZENER DIODE 1/2W 5.6V (RD5.6EB2)
40	079-056	2	ZENER DIODE 1/2 W 3.3V
41	079-037	2	ZENER DIODE 1/2W 22V (RD22EB2,MTZ22B)

42			
43	080-085	4	LED (RED) 5ϕ
44	080-110	1	LED (YELLOW) 5ϕ
45	080-086	1	LED (GREEN) 5ϕ
46			
47	071-220	2	ROTARY VR 10KA L:15MM
48	081-023	1	SLIDE SWITCH 2P2C UL
49	081-030	1	SLIDE SWITCH
50	081-041	1	SLIDE SWITCH
51	083-099	1	POWER SWITCH
52			
53	001-613	1	DC FAN 24V (80×80×25mm)
54	092-078	2	6.3ϕ PHONE JACK
55	092-105	1	AC INLET (IEC SOCKET+FUSE)
56	100-070	2	FUSE 20mm RU UTE 10A 250V
57	100-070	1	FUSE 20mm RU UTE 10A 250V (110V)
58	100-072	1	FUSE 20mm VBS UTE 5A 250V (230V)
59			
60	161-172	1	4P SPEAKER TERMINAL
61	161-109	4	FUSE CLIP JH-6
62			
63	059-234	1	POWER TRANSFORMER 86×95
64	147-024	2	COIL 1.3μH 1.0ϕ×9ϕ×9 1/2T
65	093-370	1	AC CORD SVT AWG 18×3C VW-1 UL
66	093-371	1	AC CORD 220V VDE
67	093-410	1	AC CORD ARGENTINA
68	093-369	1	AC CORD 230V BS
69	073-506	2	METAL FILM RESISTORS 1/8W 10KΩ 2%
70	063-005	1	THERMISTOR PTH9M04BE222TS2F333
71	062-024	8	WIRE WOUND RESISTOR (CERAMIC) 3W 0.22Ω
72			
73	061-110	1	METAL FILM RESISTORS 3W 470Ω
74	061-114	1	METAL FILM RESISTORS 3W 100Ω
75	061-102	2	METAL FILM RESISTORS 2W 8.2Ω
76	061-104	1	METAL FILM RESISTORS 2W 2.7KΩ
77	061-031	3	METAL FILM RESISTORS 1W 10KΩ
78			
79	061-112	2	METAL FILM RESISTORS 1/4W 86.6KΩ 1%
80	061-108	2	METAL FILM RESISTORS 1/4W 1MΩ 1%
81	061-106	2	METAL FILM RESISTORS 1/4W 2.21KΩ 1%
82			
83	060-218	4	CARBON FILM RESISTORS 1/4W 10Ω
84	060-237	3	CARBON FILM RESISTORS 1/4W 62Ω
85	060-245	6	CARBON FILM RESISTORS 1/4W 130Ω
86	060-248	2	CARBON FILM RESISTORS 1/4W 180 Ω
87	060-253	2	CARBON FILM RESISTORS 1/4W 300Ω
88	060-259	8	CARBON FILM RESISTORS 1/4W 510 Ω
89	060-263	2	CARBON FILM RESISTORS 1/4W 750 Ω
90			
91	060-279	6	CARBON FILM RESISTORS 1/4W 2.2KΩ
92	060-287	2	CARBON FILM RESISTORS 1/4W 4.7KΩ
93	060-289	3	CARBON FILM RESISTORS 1/4W 5.6KΩ
94	060-300	6	CARBON FILM RESISTORS 1/4W 16KΩ
95			
96	060-306	9	CARBON FILM RESISTORS 1/4W 30KΩ
97	060-315	5	CARBON FILM RESISTORS 1/4W 68KΩ
98			
99	050-153	2	ELECTROLYTIC CAPACITORS N.P 10μ/50V
100	050-197	1	ELECTROLYTIC CAPACITORS N.P 100μ/10V
101	050-036	2	ELECTROLYTIC CAPACITORS 22μ/25V
102	050-049	2	ELECTROLYTIC CAPACITORS 100μ/16V
103	050-120	1	ELECTROLYTIC CAPACITORS 220μ/25V
104	050-058	2	ELECTROLYTIC CAPACITORS 220μ/16V

111			
112	054-013	4	POLYESTER CERAMIC CAPACITOR 0.01μ/50V
113	054-022	2	POLYESTER CERAMIC CAPACITOR 0.047μ/50V
114	054-026	2	POLYESTER CERAMIC CAPACITOR 0.1μ/50V
115	054-030	4	POLYESTER CERAMIC CAPACITOR 0.22μ/50V
116	054-071	2	POLYESTER CERAMIC CAPACITOR 0.1μ/250V
117			
118	092-030	1	2P(P=2.5mm), CONNECTOR BASE B2B-XH-A
119	092-031	2	4P CONNECTOR BASE B4B-XH-A 180°
120	091-490	2	4P CONNECTOR WITH WIRE XH-4P STRIP×3 210mm
121			
122	093-416	1	GROUND WIRE WITH RING TONGUE (GRN/YLW) 150mm
123	093-384	1	GROUND WIRE WITH RING TONGUE (BLACK) 210mm
124	209-004	1	LEAD WIRE (WHITE) UL1015#18AWG 6×6 310mm
125	202-110	1	LEAD WIRE (RED) UL1015#18AWG 6×6 310mm
126	060-703	2	JUMPER WIRE 0.7ϕ T/ 52mm P=5mm
127	060-703	2	JUMPER WIRE 0.7ϕ T/ 52mm P=6mm
128	060-703	4	JUMPER WIRE 0.7ϕ T/ 52mm P=7.5mm
129	060-703	20	JUMPER WIRE 0.7ϕ T/ 52mm P=10mm
130	060-703	10	JUMPER WIRE 0.7ϕ T/ 52mm P=12.5mm
131	060-703	13	JUMPER WIRE 0.7ϕ T/ 52mm P=15mm
132	060-703	5	JUMPER WIRE 0.7ϕ T/ 52mm P=20mm
133			
134	146-509	4	PIN CONNECTOR
135			
136	190-075	2	HEAT-SHRINK TUBING UL 28ϕ 35mm
137	190-230	1	HEAT-SHRINK TUBING UL 35ϕ 35mm
138	190-063	2	TUBE 1ϕ 30mm
139			
140	003-605	5	CABLE TIES CV-100



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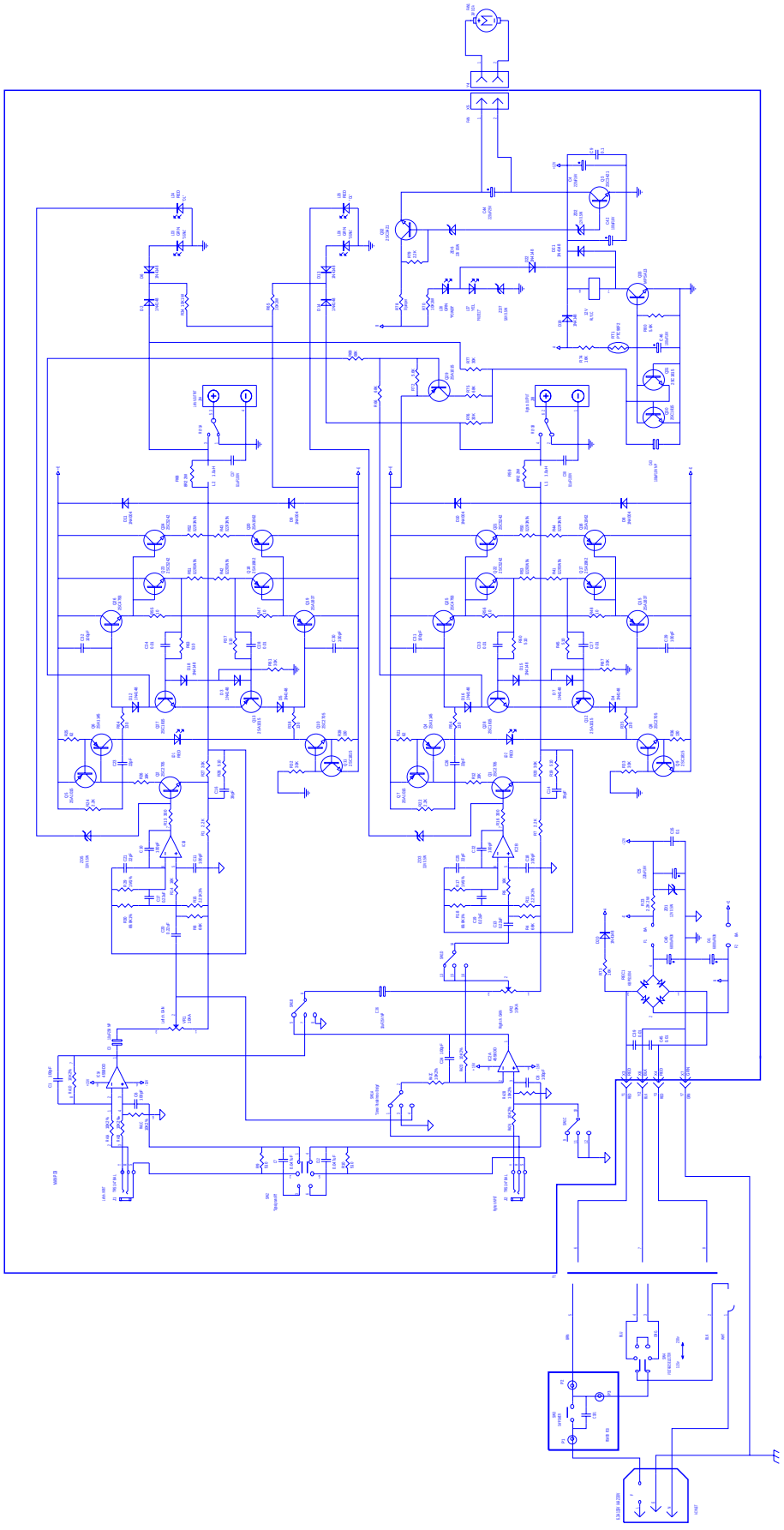

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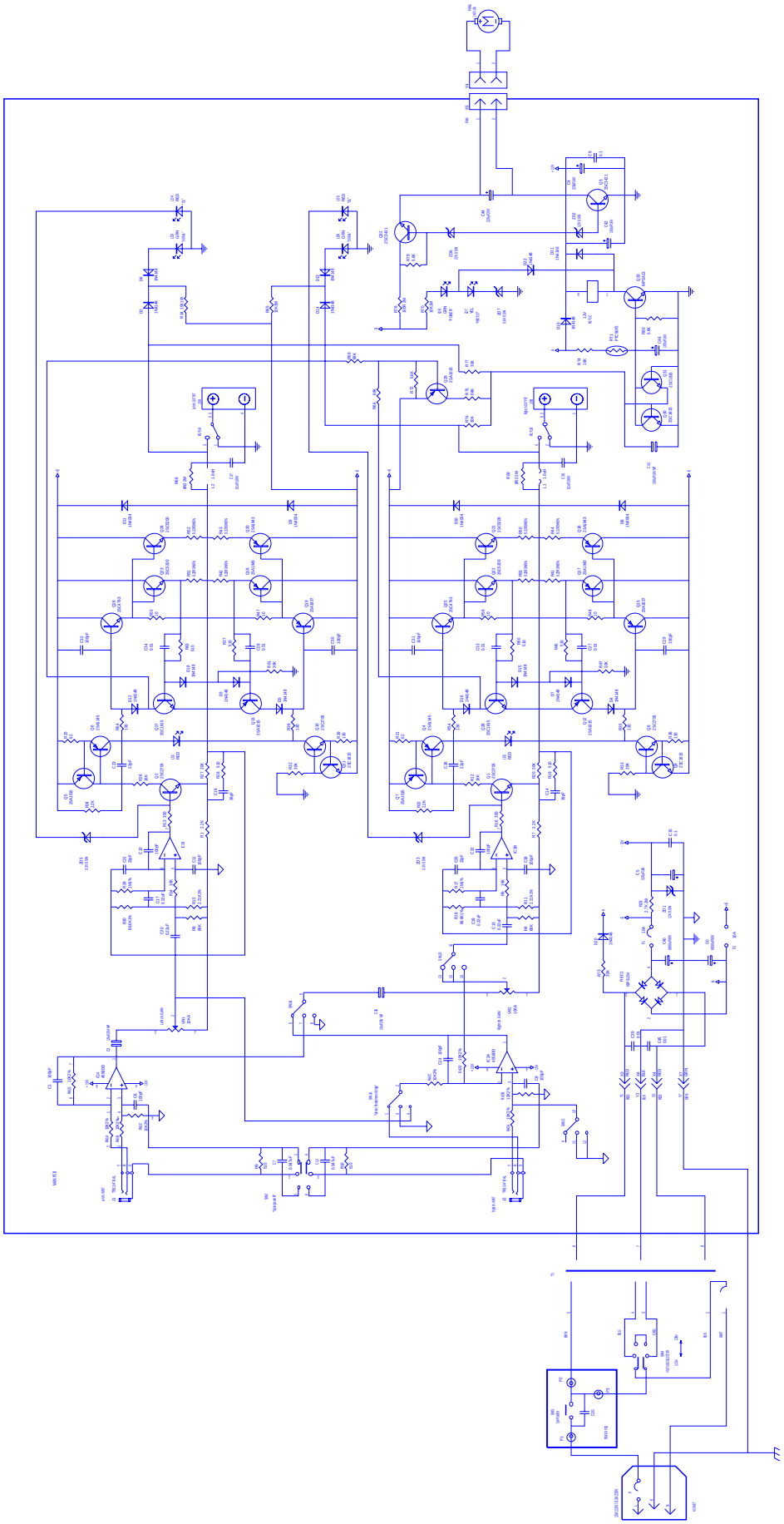

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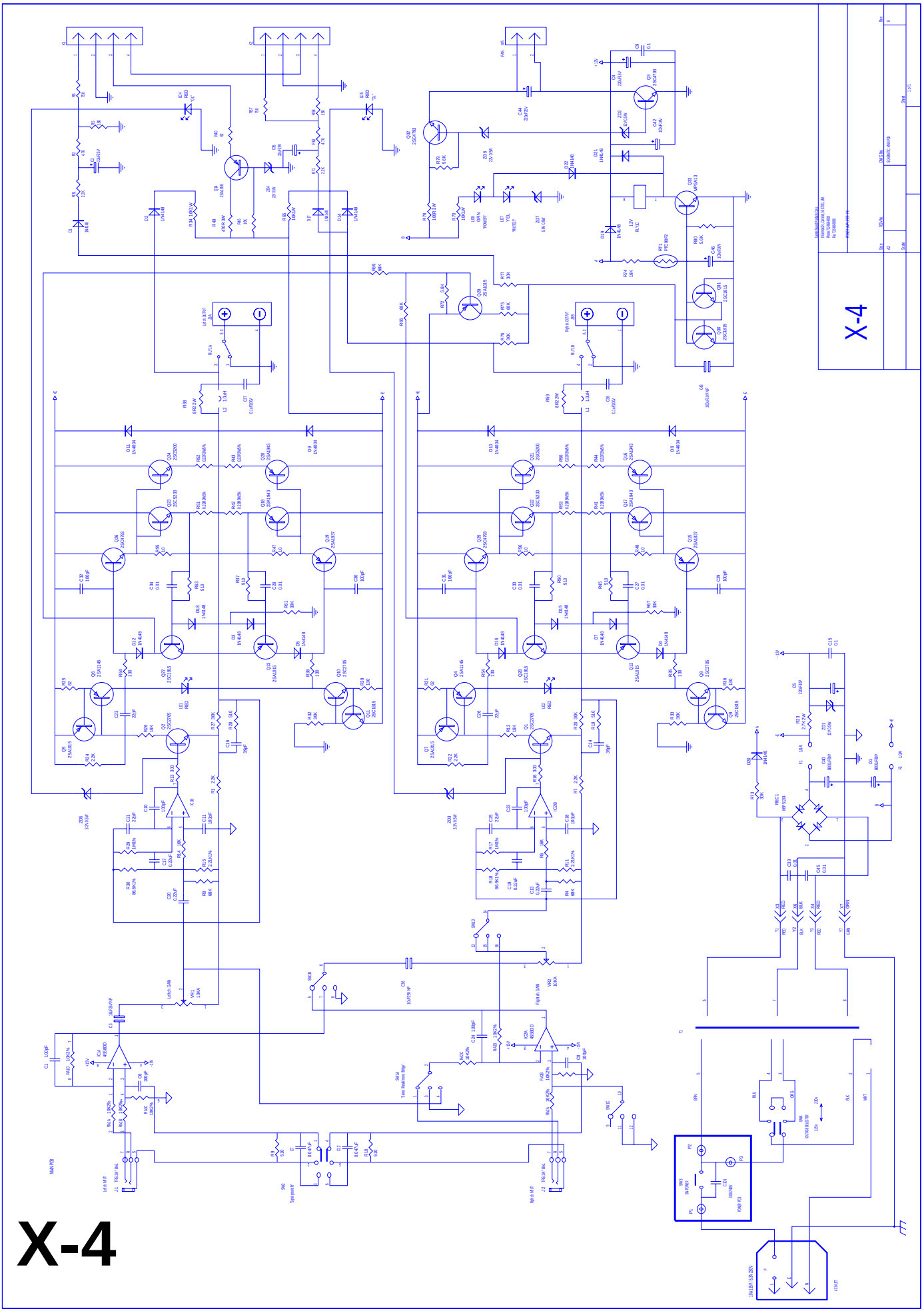
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